CLASSIFICATION CONFIDENTIAL

CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

50X1-HUM

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| COUNTRY | USSR | DATE OF INFORMATION | 1950 |
| SUBJECT | Scientific - Electricity, distribution systems | | |
| HOW PUBLISHED | Monthly periodical | DATE DIST. | 7 Sep 1950 |
| WHERE PUBLISHED | Moscow | NO. OF PAGES | 2 |
| DATE PUBLISHED | Jan 1950 | | |
| LANGUAGE | Russian | SUPPLEMENT TO REPORT NO. | |



THIS IS UNEVALUATED INFORMATION

SOURCE Elektricheskiye Stantsii, No 1, 1950.

## TECHNICAL AND ECONOMIC COMPARISON OF OPEN AND ENCLOSED 110- AND 35-KILOVOLT DISTRIBUTION INSTALLATIONS

Until recently, 110- and 35-kilovolt distribution installations were usually open installations. It was only in places with a high degree of air contamination that enclosed distribution installations were erected.

The comparatively rare use of enclosed distribution installations is explained by the high cost of construction which, when these installations were equipped with oil circuit breakers, was five to six times greater than construction of open distribution installations with the same equipment.

This unfavorable situation changed abruptly when air and small oil breakers were used. The cost of enclosed and open distribution installations then became practically identical.

Special inspections, instituted by the State Trust for Thermoelectric Enterprises, of the operation of distribution installations in many electric power stations, from the standpoint of equipment behavior and susceptibility to breakdowns resulting from contamination of the insulation or difficulties in servicing, showed that electrical equipment mounted in 110- and 35-kilovolt open installations operated under very difficult conditions.

A great defect in open distribution installations is the dependence of their maintenance on the state of the weather, because of the difficulty of oiling or uncovering apparatus in damp weather, the danger involved in operating disconnecters during heavy frosts, etc.

Despite their many advantages, enclosed distribution installations have certain drawbacks. Among these drawbacks are: greater difficulty in access to equipment and in localizing trouble, greater volume of work need in manufacture, and additional maintenance costs for housing.



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| STATE | X | NAVY | X | NSRB | DISTRIBUTION |
| ARMY | X | AIR | X | FBI | |

For the above reasons the Technical Council resolved that:

1. In those cases where plans for 110-kilovolt distribution installations included use of air circuit breakers, it should be considered advisable for all steam-electric power stations operating on coal-dust fuel or cut peat, and likewise for substations located in districts with highly contaminated air, to erect the enclosed type of distribution installation.

2. Thirty-five-kilovolt distribution installations in electric power stations and step-down substations operating under conditions where the air is greatly contaminated should be enclosed installations.

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